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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

JUNG, UNSU

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/798,001	Applicant(s) HATTORI, HIDESHI	
	Examiner UNSU JUNG	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-38 is/are pending in the application.
- 4a) Of the above claim(s) 22-25,27,29,31,33,35,37 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26,28,30,32,34 and 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. As a preliminary matter, a typo has been noted in the previous Office Action dated June 8, 2009. Claim 36 is inadvertently missing from Group I. Claim 36 should be included in the Group I claims on p2 of the Office Action.

Applicant's election of Group I in the reply filed on June 30, 2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 27, 29, 31, 33, 35, 37, and 38, drawn to non-elected Group II, have been withdrawn from further consideration.

Status of Claims

2. Claims 22-38 are pending, claims 22-25, 27, 29, 31, 33, 35, 37, and 38 have been withdrawn from consideration, and claims 26, 28, 30, 32, 34, and 36 are currently under consideration for patentability under 37 CFR 1.104.

Objections Withdrawn

3. The objection of claims 13-15 has been withdrawn in view of cancelled claims 13-15 in the reply filed on February 19, 2009.

Rejections Withdrawn

Art Unit: 1641

4. The following prior art rejections have been withdrawn in favor of cancelled claims 13-21 in the reply filed on February 19, 2009:

- Rejection of claims 13-15 and 19-21 under 35 U.S.C. 102(b) as being anticipated by Glazier (WO 00/61282, Oct. 19, 2000) and as evidenced by Patel (U.S. Patent No. 4,994,318, Feb. 19, 1991) and Taylor (U.S. Patent No. 2,713,286, July 19, 1955); and
- Rejection of claims 16-18 under 35 U.S.C. 103(a) as being unpatentable over Glazier (WO 00/61282, Oct. 19, 2000) and as evidenced by Patel (U.S. Patent No. 4,994,318, Feb. 19, 1991) and Taylor (U.S. Patent No. 2,713,286, July 19, 1955) and further in view of Noblett (U.S. Patent No. 6,362,004 B1, Mar. 26, 2002).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 26, 28, 30, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Glazier (WO 00/61282, Oct. 19, 2000) and as evidenced by Patel (U.S. Patent No. 4,994,318, Feb. 19, 1991).

Glazier anticipates instant claims by teaching a bio-microarray (see entire document, particularly, pp2-3 and p8, lines 19-23) comprising:

- a substrate (support region, pp2-3 and p8, lines 19-23):
- anti-reflection layer (porous region comprising colloidal silica particles, p3) is formed on the surface of the substrate, the anti-reflection layer has a fine uneven structure comprising a fine particle of diameter in a range of 7-100 nm (p3, lines 21-22); and
- an immobilization layer (linker molecules, p26, line 17-27, line 28) for immobilizing a probe molecule is formed in a pattern on the anti-reflection layer.

With respect to the limitation of “the limitation of,” although Glazier is silent on disclose the anti-reflection properties of colloidal silica particles, the porous region of Glazier comprising colloidal silica particles (p3) would inherently possess anti-reflection property since it is well known in the art as taught by Patel that the colloidal silica has anti-reflection properties (see entire document, particularly column 2, lines 9-10).

With respect to the limitation of “the anti-reflection layer is formed only in a region in which the immobilization layer is formed”, Glazier teaches that a porous region, which reads on the anti-reflection layer of the claimed invention, can be specifically deposited into spots or patterned surfaces (p10, lines 1-6) and an immobilization layer (linker molecules, p26, line 17-27, line 28) for immobilizing a probe molecule is formed in a pattern on the porous region. Therefore, the porous region of Glazier is only formed in a region in which the immobilization layer is formed.

With respect to claims 28 and 30, Glazier teaches that the anti-reflection layer has a fine uneven/porous structure (porous layer) with a depth in a range of 10 nm to 70 μm (p3, lines 1-4).

With respect to claim 36, Glazier teaches a bio-microarray, comprising the substrate as set forth above and a biomolecule immobilized on the substrate (p13, line 21-p14, line 14).

7. Claim 32 is rejected under 35 U.S.C. 102(b) as being anticipated by Glazier (WO 00/61282, Oct. 19, 2000) and as evidenced by Patel (U.S. Patent No. 4,994,318, Feb. 19, 1991) and further evidenced by Taylor (U.S. Patent No. 2,713,286, July 19, 1955).

Glazier teaches a bio-microarray as set forth above. With respect to the limitation of "a bulk refractive index of the fine particle is smaller than that of the substrate," Glazier further teaches that the substrate can be selected from variety of materials including plastic (p8, lines 19-20). Although Glazier does not specifically disclose that the bulk refractive index of silica particles is smaller than the plastic substrate, Glazier discloses that the substrate (support layer) can be similar or different materials than the materials of the porous region and can specifically include all types of glass materials, plastics, polymers, fused silica and other rigid and semi-rigid materials. As Glazier teaches that the support layer can comprise fused silica and the porous region (anti-reflection layer) can also include colloidal silica particles, porous layer (anti-reflection layer) of silica particles would inherently have a bulk refractive index is smaller than that of the support layer (substrate) since Taylor teaches that substantial reduction

Art Unit: 1641

of bulk refractive index of a layer is obtained because of the presence of air within the porous structure (column 3, lines 17-34).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glazier (WO 00/61282, Oct. 19, 2000) and as evidenced by Patel (U.S. Patent No. 4,994,318, Feb. 19, 1991) and further in view of Noblett (U.S. Patent No. 6,362,004 B1, Mar. 26, 2002).

Glazier as evidenced by Patel has been disclosed as set forth above. However, Glazier as evidenced by Patel fails to teach a mark formed on the substrate for positional detection.

NobleTT reference teaches fiducial marks located on predetermined locations with respect to a microarray sample, in order to position and align the sample with greater precision for detection purposes (see entire document, particularly abstract and column 3, lines 24-35).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of Glazier as evidenced by Patel with fiducial marks located on predetermined locations with respect to the probe array, as taught by NobleTT, in order to position and align a sample with greater precision for detection purposes. The advantage of more accurate detection, as taught by NobleTT, provides the motivation to combine teachings of NobleTT with Glazier as evidenced by Patel. In addition, one of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including the fiducial marks, as taught by NobleTT, in the apparatus of Glazier as evidenced by Patel, since Glazier teaches an array of predefined or known regions of polymers (see Glazier, p13, lines 27-28), and the fiducial marks of NobleTT provides a means to correctly locate the immobilized polymers.

Response to Arguments

Art Unit: 1641

11. Applicant's arguments with respect to claims 13-21 have been considered but are moot in view of the new ground(s) of rejection. However, the following arguments have been addressed as they may also apply to the current grounds of rejections.

Applicant's arguments filed on February 19, 2009 have been fully considered but they are not persuasive essentially for the reasons of record and arguments addressed herein. With respect to the limitation of "the anti-reflection layer is formed only in a region in which the immobilization layer is formed", Glazier teaches that a porous region, which reads on the anti-reflection layer of the claimed invention, can be specifically deposited into spots or patterned surfaces (p10, lines 1-6) and an immobilization layer (linker molecules, p26, line 17-27, line 28) for immobilizing a probe molecule is formed in a pattern on the porous region as set forth above. Therefore, the porous region of Glazier is only formed in a region in which the immobilization layer is formed.

In view of the foregoing, the prior art rejections set forth above have been maintained.

Since the prior art fulfills all the limitations currently recited in the claims, the invention as currently recited would read upon the prior art.

Conclusion

12. No claims are allowed.

Art Unit: 1641

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to UNSU JUNG whose telephone number is (571)272-8506. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1641

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Unsu Jung/
Unsu Jung
Primary Examiner
Art Unit 1641